SEQUENCE LISTING

<110> University of Dundee, University of Dundee

<120> Polypeptides, Polynucleotides and Uses Thereof

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<140> 09/581,651
<141> 2000-10-10

<150> PCT/GB98/03766
<151> 1998-12-15

<160> 44

<170> PatentIn version 3.2

<210> 1
<211> 675
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<213> Homo sapiens

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Asn Leu Val Ala Thr Cys Leu Pro Val Arg Ala Ser Leu Pro His Arg
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Leu Asn Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val
20 25 30

Leu Cys Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys
35 40 45

Arg Gln Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser
50 55 60

Gln Ser Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn
65 70 75 80

Gln Gln Trp Glu Arg Thr Tyr Leu Gly Asn Val Leu Val Cys Thr Cys
85 90 95

Tyr Gly Gly Ser Arg Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu
100 105 110

Glu Thr Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp
115 120 125

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Thr Tyr Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile
    130                 135                 140

Gly Ala Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His
145                 150                 155                 160

Glu Gly Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His
                165                 170                 175

Glu Thr Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys
            180                 185                 190

Gly Glu Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala
        195                 200                 205

Ala Gly Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln
    210                 215                 220

Gly Trp Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg
225                 230                 235                 240

Ile Thr Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr
                245                 250                 255

Ser Tyr Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn
            260                 265                 270

Leu Leu Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys
        275                 280                 285

Glu Arg His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe
    290                 295                 300

Thr Asp Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro
305                 310                 315                 320

Pro Pro Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val
                325                 330                 335

Gly Met Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr
            340                 345                 350

Cys Leu Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr
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        355                 360                 365

Tyr Gly Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr
    370                 375                 380

Asn Gly Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly
385                 390                 395                 400

His Leu Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr
            405                 410                 415

Ser Phe Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn
        420                 425                 430

Ser Asn Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn
        435                 440                 445

Tyr Thr Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys
    450                 455                 460

Gly Thr Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro
465                 470                 475                 480

Met Ala Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr
                485                 490                 495

Arg Ile Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met
            500                 505                 510

Arg Cys Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Tyr Ala
        515                 520                 525

Tyr Ser Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn
    530                 535                 540

Val Asn Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn
545                 550                 555                 560

Cys Thr Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val
                565                 570                 575

Asp Gln Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp
            580                 585                 590
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Ser Trp Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr
595 600 605

Gly Arg Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro
610 615 620

Ser Ser Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln
625 630 635 640

Pro Asn Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile
645 650 655

Ser Lys Tyr Ile Leu Arg Trp Arg Pro Val Ser Ile Pro Pro Arg Asn
660 665 670

Leu Gly Tyr
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cctccacggg agcctcgaag agcaagaggc aggctcagca aatggttcag ccccagtccc 180

cggtggctgt cagtcaaagc aagcccggtt gttatgacaa tggaaaacac tatcagataa 240

atcaacagtg ggagcggacc tacctaggca atgcgttggt ttgtacttgt tatggaggaa 300

gccgaggttt taactgcgag agtaaacctg aagctgaaga gacttgcttt gacaagtaca 360

ctgggaacac ttaccgagtg ggtgacactt atgagcgtcc taaagactcc atgatctggg 420

actgtacctg catcggggct gggcgaggga gaataagctg taccatcgca aaccgctgcc 480

atgaaggggg tcagtcctac aagattggtg acacctggag gagaccacat gagactggtg 540

gttacatgtt agagtgtgtg tgtcttggta atggaaaagg agaatggacc tgcaagccca 600

tagctgagaa gtgttttgat catgctgctg ggacttccta tgtggtcgga gaaacgtggg 660

agaagcccta ccaaggctgg atgatggtag attgtacttg cctgggagaa ggcagcggac 720

gcatcacttg cacttctaga aatagatgca acgatcagga cacaaggaca tcctatagaa 780

ttggagacac ctggagcaag aaggataatc gaggaaacct gctccagtgc atctgcacag 840

gcaacggccg aggagagtgg aagtgtgaga ggcacacctc tgtgcagacc acatcgagcg 900

gatctggccc cttcaccgat gttcgtgcag ctgtttacca accgcagcct caccccccagc 960

ctcctcccta tggccactgt gtcacagaca gtggtgtggt ctactctgtg gggatgcagt 1020

ggctgaagac acaaggaaat aagcaaatgc tttgcacgtg cctgggcaac ggagtcagct 1080

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agggcagaag agacaacatg aagtggtgtg ggaccacaca gaactatgat gccgaccaga 1380

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ggcattgcca acctttacag acctatccaa gctcaagtgg tcctgtcgaa gtatttatca 1860

ctgagactcc gagtcagccc aactcccacc ccatccagtg gaatgcacca cagccatctc 1920

acatttccaa gtacattctc aggtggagac ctgtgagtat cccacccaga aaccttggat 1980

actgagtctc ctaatcttat caattctgat ggtttctttt tttcccagct tttgagccaa 2040

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<213> Homo sapiens

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Ile Ser Lys Tyr Ile Leu Arg Trp Arg Pro Val Ser Ile Pro Pro Arg
1 5 10 15

Asn Leu Gly Tyr
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<210> 4
<211> 21
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<213> Homo sapiens

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Gln Gln Trp Glu Arg Thr Tyr Leu Gly Asn Ala Leu Val Cys Thr Cys
1 5 10 15

Tyr Gly Gly Ser Arg
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<210> 5
<211> 23
<212> PRT
<213> Homo sapiens

<400> 5

Pro Cys Val Leu Pro Phe Thr Tyr Asn Asp Arg Thr Asp Ser Thr Thr
1 5 10 15

Ser Asn Tyr Glu Gln Asp Gln
20

<210> 6
<211> 20
<212> PRT
<213> Homo sapiens

<400> 6

Thr Asp His Thr Val Leu Val Gln Thr Arg Gly Gly Asn Ser Asn Gly
1 5 10 15

Ala Leu Cys His
20

<210> 7
<211> 21
<212> PRT
<213> Homo sapiens

<400> 7

Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Ile Ala Tyr Ser Gln Leu
1 5 10 15

Arg Asp Gln Cys Ile
20

<210> 8
<211> 21
<212> PRT
<213> Homo sapiens

<400> 8

Gln Gln Trp Glu Arg Thr Tyr Leu Gly Asn Val Leu Val Cys Thr Cys
1 5 10 15

Tyr Gly Gly Ser Arg
20

<210> 9
<211> 39
<212> PRT
<213> Homo sapiens

<400> 9

Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Gly Arg Thr Phe Tyr Ser
1 5 10 15

Cys Thr Thr Glu Gly Arg Gln Asp Gly His Leu Trp Cys Ser Thr Thr
20 25 30

Ser Asn Tyr Glu Gln Asp Gln
35

<210> 10
<211> 21
<212> PRT
<213> Homo sapiens

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Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn Ser Asn
1 5 10 15

Gly Ala Leu Cys His
20

<210> 11
<211> 21
<212> PRT
<213> Homo sapiens

<400> 11

Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Thr Ala Tyr Ser Gln Leu
1 5 10 15

Arg Asp Gln Cys Ile
20

<210> 12
<211> 20
<212> PRT
<213> Homo sapiens

<400> 12

Ile Ser Lys Thr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg
1 5 10 15

Trp Lys Glu Ala
20

<210> 13
<211> 18
<212> PRT
<213> Homo sapiens

<400> 13

Asn Leu Val Ala Thr Cys Leu Pro Val Arg Ala Ser Leu Pro His Arg
1 5 10 15

Leu Asn

<210> 14
<211> 31
<212> PRT
<213> Homo sapiens

<400> 14

Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val Gln Cys
1 5 10 15

Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys Arg
20 25 30

<210> 15
<211> 20
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<213> Homo sapiens

<400> 15

Gln Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser Gln
1 5 10 15

Ser Lys Pro Gly
20

<210> 16
<211> 45
<212> PRT
<213> Homo sapiens

<400> 16

Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn Gln Gln Trp Glu Arg
1 5 10 15

Thr Tyr Leu Gly Asn Ala Leu Val Cys Thr Cys Tyr Gly Gly Ser Arg
20 25 30

Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu Glu Thr
35 40 45

<210> 17
<211> 42
<212> PRT
<213> Homo sapiens

<400> 17

Cys Asn Asp Gln Asp Thr Arg Thr Ser Tyr Arg Ile Gly Asp Thr Trp
1 5 10 15

Ser Lys Lys Asp Asn Arg Gly Asn Leu Leu Gln Cys Ile Cys Thr Gly
20 25 30

Asn Gly Arg Gly Glu Trp Lys Cys Glu Arg
35 40

<210> 18
<211> 35
<212> PRT
<213> Homo sapiens

<400> 18

His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe Thr Asp
1 5 10 15

Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro Pro Pro
20 25 30

Tyr Gly His
35

<210> 19
<211> 37
<212> PRT
<213> Homo sapiens

<400> 19

Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val Gly Met Gln Trp Leu
1 5 10 15

Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr Cys Leu Gly Asn Gly
20 25 30

Val Ser Cys Gln Glu
35

<210> 20
<211> 45
<212> PRT
<213> Homo sapiens

<400> 20

Thr Ala Val Thr Gln Thr Tyr Gly Gly Asn Ser Asn Gly Glu Pro Cys
1 5 10 15

Val Leu Pro Phe Thr Tyr Asn Asp Arg Thr Asp Ser Thr Thr Ser Asn
20 25 30

Tyr Glu Gln Asp Gln Lys Tyr Ser Phe Cys Thr Asp His
35 40 45

<210> 21
<211> 48
<212> PRT
<213> Homo sapiens

<400> 21

Cys Thr Thr Asn Glu Gly Val Met Tyr Arg Ile Gly Asp Gln Trp Asp
1 5 10 15

Lys Gln His Asp Met Gly His Met Met Arg Cys Thr Cys Val Gly Asn
20 25 30

Gly Arg Gly Glu Trp Thr Cys Ile Ala Tyr Ser Gln Leu Arg Asp Gln
35 40 45

<210> 22
<211> 43
<212> PRT
<213> Homo sapiens

<400> 22

Cys Ile Val Asp Asp Ile Thr Tyr Asn Val Asn Asp Thr Phe His Lys
1 5 10 15

Arg His Glu Glu Gly His Met Leu Asn Cys Thr Cys Phe Gly Gln Gly
20 25 30

Arg Gly Arg Trp Lys Cys Asp Pro Val Asp Gln
35 40

<210> 23
<211> 48
<212> PRT
<213> Homo sapiens

<400> 23

Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp Ser Trp
1 5 10 15

Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr Gly Arg
20 25 30

Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro Ser Ser
35 40 45

<210> 24
<211> 39
<212> PRT
<213> Homo sapiens

<400> 24

Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln Pro Asn
1 5 10 15

Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile Ser Lys
20 25 30

Tyr Ile Leu Arg Trp Arg Pro
35

<210> 25
<211> 10
<212> PRT
<213> Homo sapiens

<400> 25

Val Ser Ile Pro Pro Arg Asn Leu Gly Tyr
1 5 10

<210> 26
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<212> PRT
<213> Homo sapiens

<400> 26

Trp Phe Leu Phe Phe Pro Ala Phe Glu Pro Thr Thr Leu Ile Asn Tyr
1 5 10 15

Ser Tyr Ser Ile Tyr Tyr Ile Cys Leu Val Asn Lys Gln Tyr Val Val
20 25 30

Asn Ile Asp Leu Thr Glu Lys Lys Lys Lys Lys Lys
35 40

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<211> 6
<212> PRT
<213> Homo sapiens

<400> 27

Met Leu Arg Gly Pro Gly

1 5

<210> 28
<211> 65
<212> PRT
<213> Homo sapiens

<400> 28

Thr Val Leu Val Gln Thr Arg Gly Gly Asn Ser Asn Gly Ala Leu Cys
1 5 10 15

His Phe Pro Phe Leu Tyr Asn Asn His Asn Tyr Thr Asp Cys Thr Ser
20 25 30

Glu Gly Arg Arg Asp Asn Met Lys Trp Cys Gly Thr Thr Gln Asn Tyr
35 40 45

Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro Met Ala Ala His Glu Glu
50 55 60

Ile
65

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Val Ser
1

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<400> 30

Ser Tyr Gln Phe
1

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<212> PRT
<213> Homo sapiens

<400> 31

Trp Phe Leu Phe Phe Pro Ala Phe Glu Pro Thr Thr Leu Ile Asn Tyr
1 5 10 15

Ser Tyr Ser Ile Tyr Tyr Ile Cys Leu Val Asn Lys Gln Tyr Val Val
20 25 30

Asn

<210> 32
<211> 3
<212> PRT
<213> Homo sapiens

<400> 32

Ile Asp Leu
1

<210> 33
<211> 8
<212> PRT
<213> Homo sapiens

<400> 33

Thr Glu Lys Lys Lys Lys Lys Lys
1 5

<210> 34
<211> 24
<212> PRT
<213> Homo sapiens

<400> 34

Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Asp Arg Thr Asp Ser Thr
1 5 10 15

Thr Ser Asn Tyr Glu Gln Asp Gln
20

<210> 35
<211> 20
<212> PRT
<213> Homo sapiens

<400> 35

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Thr Asp His Thr Val Leu Val Gln Thr Arg Gly Gly Asn Ser Asn Gly
1               5                   10                  15

Ala Leu Cys His
            20
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<213> Homo sapiens

<400> 36

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Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Ala Val Leu Cys
1               5                   10                  15

Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys Arg Gln
            20                  25                  30

Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser Gln Ser
        35                  40                  45

Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn Gln Gln
    50                  55                  60

Trp Glu Arg Thr Tyr Leu Gly Asn Val Leu Val Cys Thr Cys Tyr Gly
65                  70                  75                  80

Gly Ser Arg Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu Glu Thr
                85                  90                  95

Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp Thr Tyr
            100                 105                 110

Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile Gly Ala
        115                 120                 125

Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His Glu Gly
    130                 135                 140

Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His Glu Thr
145                 150                 155                 160

Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys Gly Glu
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                165                 170                 175

Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala Ala Gly
            180                 185                 190

Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln Gly Trp
        195                 200                 205

Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg Ile Thr
    210                 215                 220

Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr Ser Tyr
225                 230                 235                 240

Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn Leu Leu
                245                 250                 255

Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys Glu Arg
            260                 265                 270

His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe Thr Asp
        275                 280                 285

Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro Pro Pro
    290                 295                 300

Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val Gly Met
305                 310                 315                 320

Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr Cys Leu
                325                 330                 335

Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr Tyr Gly
            340                 345                 350

Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Gly
        355                 360                 365

Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly His Leu
    370                 375                 380

Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr Ser Phe
385                 390                 395                 400
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Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn Ser Asn
                405                 410                 415

Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn Tyr Thr
            420                 425                 430

Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys Gly Thr
        435                 440                 445

Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro Met Ala
    450                 455                 460

Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr Arg Ile
465                 470                 475                 480

Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met Arg Cys
                485                 490                 495

Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Tyr Ala Tyr Ser
            500                 505                 510

Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn Val Asn
        515                 520                 525

Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn Cys Thr
    530                 535                 540

Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val Asp Gln
545                 550                 555                 560

Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp Ser Trp
                565                 570                 575

Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr Gly Arg
            580                 585                 590

Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro Ser Ser
        595                 600                 605

Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln Pro Asn
    610                 615                 620
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Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile Ser Lys
625                 630                 635                 640

Tyr Ile Leu Arg Trp Arg Pro Val Ser Ile Pro Pro Arg Asn Leu Gly
                645                 650                 655

Tyr
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<213> Homo sapiens

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<223> Xaa can be any naturally occurring amino acid

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<223> Xaa can be any naturally occurring amino acid

<400> 37

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Asn Leu Val Ala Thr Cys Leu Pro Val Arg Ala Ser Leu Pro His Arg
1               5                   10                  15

Leu Asn Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val
            20                  25                  30

Leu Cys Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys
        35                  40                  45

Arg Gln Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser
    50                  55                  60
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Gln Ser Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn
65                  70                  75                  80

Gln Gln Trp Glu Arg Thr Tyr Leu Gly Asn Val Leu Val Cys Thr Cys
                85                  90                  95

Tyr Gly Gly Ser Arg Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu
            100                 105                 110

Glu Thr Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp
        115                 120                 125

Thr Tyr Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile
    130                 135                 140

Gly Ala Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His
145                 150                 155                 160

Glu Gly Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His
                165                 170                 175

Glu Thr Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys
            180                 185                 190

Gly Glu Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala
        195                 200                 205

Ala Gly Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln
    210                 215                 220

Gly Trp Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg
225                 230                 235                 240

Ile Thr Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr
                245                 250                 255

Ser Tyr Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn
            260                 265                 270

Leu Leu Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys
        275                 280                 285

Glu Arg His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe
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290 295 300

Thr Asp Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro
305 310 315 320

Pro Pro Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val
325 330 335

Gly Met Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr
340 345 350

Cys Leu Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr
355 360 365

Tyr Gly Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr
370 375 380

Asn Gly Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly
385 390 395 400

His Leu Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr
405 410 415

Ser Phe Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn
420 425 430

Ser Asn Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn
435 440 445

Tyr Thr Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys
450 455 460

Gly Thr Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro
465 470 475 480

Met Ala Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr
485 490 495

Arg Ile Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met
500 505 510

Arg Cys Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Tyr Ala
515 520 525

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Tyr Ser Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn
    530                 535                 540

Val Asn Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn
545                 550                 555                 560

Cys Thr Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val
                565                 570                 575

Asp Gln Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp
            580                 585                 590

Ser Trp Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr
        595                 600                 605

Gly Arg Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro
    610                 615                 620

Ser Ser Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln
625                 630                 635                 640

Pro Asn Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile
                645                 650                 655

Ser Lys Tyr Ile Leu Arg Trp Arg Pro Val Ser Ile Pro Pro Arg Asn
            660                 665                 670

Leu Gly Tyr Xaa Val Ser Xaa Ser Gln Phe Xaa Trp Phe Leu Phe Phe
        675                 680                 685

Pro Ala Phe Glu Pro Thr Thr Leu Ile Asn Tyr Ser Tyr Ser Ile Tyr
    690                 695                 700

Tyr Ile Cys Leu Val Asn Lys Gln Tyr Val Val Asn Xaa Ile Asp
705                 710                 715
```

<210> 38
<211> 44
<212> PRT
<213> Homo sapiens

<400> 38

```
Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp Thr Tyr
1               5                   10                  15

Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile Gly Ala
            20                  25                  30

Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg
        35                  40
```

<210> 39
<211> 45
<212> PRT
<213> Homo sapiens

<400> 39

```
Cys His Glu Gly Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg
1               5                   10                  15

Pro His Glu Thr Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn
            20                  25                  30

Gly Lys Gly Glu Trp Thr Cys Lys Pro Ile Ala Glu Lys
        35                  40                  45
```

<210> 40
<211> 45
<212> PRT
<213> Homo sapiens

<400> 40

```
Cys Phe Asp His Ala Ala Gly Thr Ser Tyr Val Val Gly Glu Thr Trp
1               5                   10                  15

Glu Lys Pro Tyr Gln Gly Trp Met Met Val Asp Cys Thr Cys Leu Gly
            20                  25                  30

Glu Gly Ser Gly Arg Ile Thr Gly Thr Ser Arg Asn Arg
        35                  40                  45
```

<210> 41
<211> 1926
<212> DNA
<213> Homo sapiens

<400> 41

```
atgcttaggg gtccggggcc cgggctgctg ctgctggccg tccagtgcct ggggacagcg     60
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gtgccctcca cgggagcctc gaagagcaag aggcaggctc agcaaatggt tcagccccag 120

tccccggtgg ctgtcagtca aagcaagccc ggttgttatg acaatggaaa acactatcag 180

ataaatcaac agtgggagcg gacctaccta ggcaatgcgt tggtttgtac ttgttatgga 240

ggaagccgag gttttaactg cgagagtaaa cctgaagctg aagagacttg ctttgacaag 300

tacactggga acacttaccg agtgggtgac acttatgagc gtcctaaaga ctccatgatc 360

tgggactgta cctgcatcgg ggctgggcga gggagaataa gctgtaccat cgcaaaccgc 420

tgccatgaag ggggtcagtc ctacaagatt ggtgacacct ggaggagacc acatgagact 480

ggtggttaca tgttagagtg tgtgtgtctt ggtaatggaa aaggagaatg gacctgcaag 540

cccatagctg agaagtgttt tgatcatgct gctgggactt cctatgtggt cggagaaacg 600

tgggagaagc cctaccaagg ctggatgatg gtagattgta cttgcctggg agaaggcagc 660

ggacgcatca cttgcacttc tagaaataga tgcaacgatc aggacacaag gacatcctat 720

agaattggag acacctggag caagaaggat aatcgaggaa acctgctcca gtgcatctgc 780

acaggcaacg gccgaggaga gtggaagtgt gagaggcaca cctctgtgca gaccacatcg 840

agcggatctg gccccttcac cgatgttcgt gcagctgttt accaaccgca gcctcacccc 900

cagcctcctc cctatggcca ctgtgtcaca gacagtggtg tggtctactc tgtggggatg 960

cagtggctga agacacaagg aaataagcaa atgctttgca cgtgcctggg caacggagtc 1020

agctgccaag agacagctgt aacccagact tacggtggca actcaaatgg agagccatgt 1080

gtcttaccat tcacctacaa cgacaggacg gacagcacaa cttcgaatta tgagcaggac 1140

cagaaatact ctttctgcac agaccacact gttttggttc agactcgagg aggaaattcc 1200

aatggtgcct tgtgccactt ccccttccta tacaacaacc acaattacac tgattgcact 1260

tctgagggca gaagagacaa catgaagtgg tgtgggacca cacagaacta tgatgccgac 1320

cagaagtttg ggttctgccc catggctgcc cacgaggaaa tctgcacaac caatgaaggg 1380

gtcatgtacc gcattggaga tcagtgggat aagcagcatg acatgggtca catgatgagg 1440

tgcacgtgtg ttgggaatgg tcgtggggaa tggacatgca ttgcctactc gcagcttcga 1500

gatcagtgca ttgttgatga catcacttac aatgtgaacg acacattcca caagcgtcat 1560

gaagaggggc acatgctgaa ctgtacatgc ttcggtcagg gtcggggcag gtggaagtgt 1620

gatcccgtcg accaatgcca ggattcagag actgggacgt tttatcaaat tggagattca 1680

tgggagaagt atgtgcatgg tgtcagatac cagtgctact gctatggccg tggcattggg 1740

gagtggcatt gccaaccttt acagacctat ccaagctcaa gtggtcctgt cgaagtattt 1800

atcactgaga ctccgagtca gcccaactcc caccccatcc agtggaatgc accacagcca 1860

tctcacattt ccaagtacat tctcaggtgg agacctgtga gtatcccacc cagaaacctt 1920

ggatac 1926

<210> 42
<211> 21
<212> PRT
<213> Homo sapiens

<400> 42

Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Tyr Ala Tyr Ser Gln Leu
1 5 10 15

Arg Asp Gln Cys Ile
20

<210> 43
<211> 20
<212> PRT
<213> Homo sapiens

<400> 43

Ile Ser Lys Tyr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg
1 5 10 15

Trp Lys Glu Ala
20

<210> 44
<211> 720
<212> PRT
<213> Homo sapiens

<400> 44

Asn Leu Val Ala Thr Cys Leu Pro Val Arg Ala Ser Leu Pro His Arg
1 5 10 15

Leu Asn Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val
20 25 30

Leu Cys Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys
35 40 45

```
Arg Gln Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser
    50                  55                  60

Gln Ser Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn
65                  70                  75                  80

Gln Gln Trp Glu Arg Thr Tyr Leu Gly Asn Val Leu Val Cys Thr Cys
                85                  90                  95

Tyr Gly Gly Ser Arg Gly Phe Asn Cys Glu Ser Lys Pro Glu Ala Glu
            100                 105                 110

Glu Thr Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp
        115                 120                 125

Thr Tyr Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile
    130                 135                 140

Gly Ala Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His
145                 150                 155                 160

Glu Gly Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His
                165                 170                 175

Glu Thr Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys
            180                 185                 190

Gly Glu Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala
        195                 200                 205

Ala Gly Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln
    210                 215                 220

Gly Trp Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg
225                 230                 235                 240

Ile Thr Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr
                245                 250                 255

Ser Tyr Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn
            260                 265                 270
```

```
Leu Leu Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys
        275                 280                 285

Glu Arg His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe
    290                 295                 300

Thr Asp Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro
305                 310                 315                 320

Pro Pro Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val
                325                 330                 335

Gly Met Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr
            340                 345                 350

Cys Leu Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr
        355                 360                 365

Tyr Gly Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr
    370                 375                 380

Asn Gly Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly
385                 390                 395                 400

His Leu Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr
                405                 410                 415

Ser Phe Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn
            420                 425                 430

Ser Asn Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn
        435                 440                 445

Tyr Thr Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys
    450                 455                 460

Gly Thr Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro
465                 470                 475                 480

Met Ala Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr
                485                 490                 495

Arg Ile Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met
```

```
            500                 505                 510

Arg Cys Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Tyr Ala
        515                 520                 525

Tyr Ser Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn
    530                 535                 540

Val Asn Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn
545                 550                 555                 560

Cys Thr Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val
                565                 570                 575

Asp Gln Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp
            580                 585                 590

Ser Trp Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr
        595                 600                 605

Gly Arg Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro
    610                 615                 620

Ser Ser Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln
625                 630                 635                 640

Pro Asn Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile
                645                 650                 655

Ser Lys Tyr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg Trp
            660                 665                 670

Lys Glu Ala Thr Ile Pro Gly His Leu Asn Ser Tyr Thr Ile Lys Gly
        675                 680                 685

Leu Lys Pro Gly Val Val Tyr Glu Gly Gln Leu Ile Ser Ile Gln Gln
    690                 695                 700

Tyr Gly His Gln Glu Val Thr Arg Phe Asp Phe Thr Thr Thr Ser Thr
705                 710                 715                 720
```